Appendix E: Fleet Mix[1]

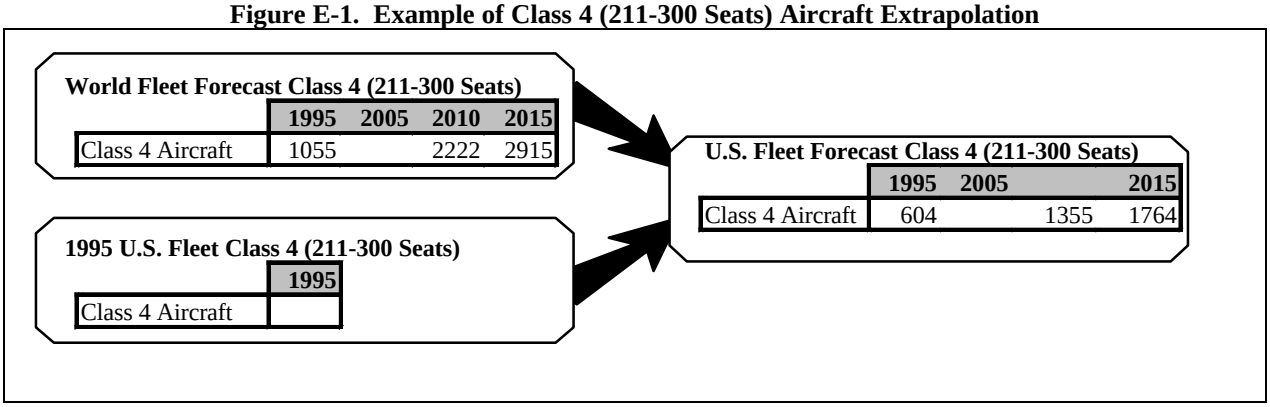
The fleet mix used for this study was developed using data from NASA/LMI, ATA, ICAO, and APO. The current fleet mix was compiled using data from NASA/LMI's Aviation System Analysis Capability (ASAC) database and ATA input. Since the ASAC database has information on passenger aircraft only, this data was augmented with information from ATA to account for cargo aircraft. Using both of these sources, the baseline fleet for 1995 was obtained and then extrapolated to 1996, 2005, 2010, and 2015. The future fleet mix does not assume incorporation of advanced engine technologies resulting from ongoing research activities.

Table E-1. Sample 1995 Data from ASAC Database

Carrier	Manufacturer	Type	Model	Yr of 1st Delivery	Seats	Country	Engine Maker	Engines	Serial #	Registration #
ALLEGHENY COMMUTER AIRLINES	BRAD	DHC8	DHC8-101	1984	37	USA	PWC	PW120A	D8007	N801MX
ALOHA AIRLINES	BOEING	737	737-200C	1985	110	USA	PW	JT8D-17A	23292	N8924E
AMERICA WEST AIRLINES	AIRBUS	A320	A320-232	1995	150	USA	IAE	V2527-A5	D0471	N901DA
AMERICA WEST EXPRESS	BEECH	1900	1900D	1991	19	USA	PWC	PT6A-67D	UE-002	N3YV
AMERICA WEST EXPRESS	BEECH	1900	1900D	1991	19	USA	PWC	PT6A-67D	UE-003	N75ZV
AMERICA WEST EXPRESS	BEECH	1900	1900D	1993	19	USA	PWC	PT6A-67D	UE-075	N78YV
AMERICA WEST EXPRESS	BEECH	1900	1900D	1993	19	USA	PWC	PT6A-67D	UE-078	N86YV
AMERICA WEST EXPRESS	BEECH	1900	1900D	1994	19	USA	PWC	PT6A-67D	UE-086	N837CA
AMERICAN AIRLINES	BOEING	727	727-200F	1977	150	USA	PW	JT8D-9A	21086	N401AL
AMERICAN AIRLINES	BOEING	767	767-200	1982	172	USA	GE	CF6-80A	22307	N302AA
AMERICAN AIRLINES	BOEING	767	767-200EREM	1984	172	USA	GE	CF6-80A	22315	N313AA
AMERICAN AIRLINES	AIRBUS	A300-600	B4-605R	1993	267	USA	GE	CF6-80C2	A0675	N962GF
AMERICAN AIRLINES	DOUGLAS	DC10	DC10-10	1970	290	USA	GE	CF6-6D	46502	N103AA
AMERICAN AIRLINES	DOUGLAS	MD11	MD11-P	1991	257	USA	GE	CF6-80C2	48419	N1752K

ICAO forecasts the world fleet out to 2015 separating aircraft by class (number of seats). Using ICAO's forecast for each class, and the U.S. fleet for 1995 developed above, the U.S. forecast for each class was extrapolated from the world forecast based on the assumption the proportion of U.S. aircraft in the world fleet would remain constant.

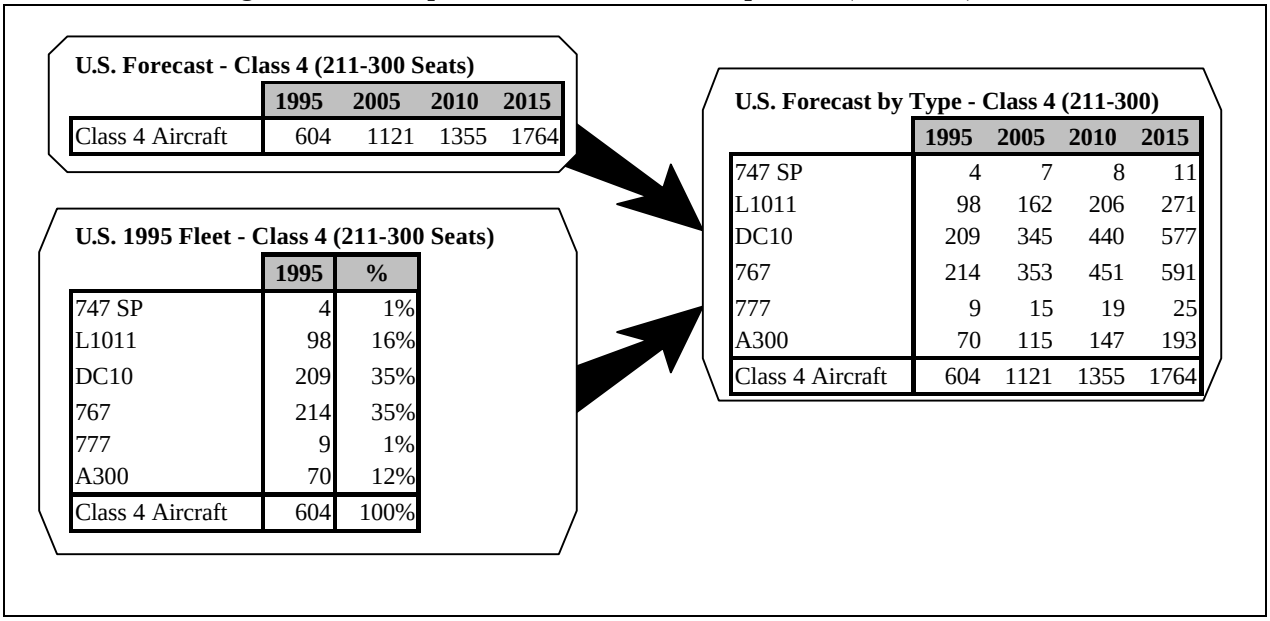
Figure E-1. Example of Class 4 (211-300 Seats) Aircraft Extrapolation



[1] This appendix was developed by Donna Middleton (FAA/SETA).

The U.S. forecast for each class was then used as a basis for estimating the future inventory for each type of aircraft by assuming that the percentage of each aircraft type in each class of aircraft will stay the same in the future. Figure E-2 is a continuation of the example in Figure E-1.

Figure E-2. Example of Class 4 Aircraft Interpolation (continued)



U.S. Forecast - Class 4 (211-300 Seats)

	1995	2005	2010	2015
Class 4 Aircraft	604	1121	1355	1764

U.S. 1995 Fleet - Class 4 (211-300 Seats)

	1995	%
747 SP	4	1%
L1011	98	16%
DC10	209	35%
767	214	35%
777	9	1%
A300	70	12%
Class 4 Aircraft	604	100%

U.S. Forecast by Type - Class 4 (211-300)

	1995	2005	2010	2015
747 SP	4	7	8	11
L1011	98	162	206	271
DC10	209	345	440	577
767	214	353	451	591
777	9	15	19	25
A300	70	115	147	193
Class 4 Aircraft	604	1121	1355	1764

The resulting U.S. forecast was then validated and updated using APO's forecast for Stage 2/3 aircraft. The term Stage 2/3 aircraft refers to aircraft that meet Stage 2/3 noise levels as prescribed in Title 14 of the Code of Federal Regulations (14 CFR), part 36. Stage 2 aircraft are being removed from the fleet inventory under section 91.853 of 14 CFR, part 91. Adjustments to the future aircraft inventory were made to account for the phasing out of these aircraft. Aircraft that currently are out of production (such as the 727 and 737-100/200) were reduced in the future fleet, and other aircraft in the same class were increased to compensate. 1996 fleet totals were obtained by interpolating between the 1995 total and 2005 total assuming a constant increasing or decreasing rate between those years. The resulting U.S. forecast is shown in Figure E-2.

Figure E-3. U.S. Fleet Forecast

Class	Type	1996	2005	2010	2015
20-40 seats	DHC6	64	108	131	155
	DHC8	144	244	296	349
	D328	37	63	76	90
	Embr120	237	402	488	576
	J31	87	148	180	212
	J32	83	141	171	202
	J41	39	66	80	95
>40 seats	ATP	12	36	48	61
	ATR-42	100	299	400	506
	ATR-72	51	153	204	258
	CV-580	18	54	72	91
	CRJ	36	108	144	182
	DHC7	29	87	116	147
	F27	14	42	56	71
Total (Class 1)		951	1950	2462	2994
	BAE146	41	47	52	57
	A320	109	187	267	306
	DC8	102	119	131	143
	DC9	454	408	328	328
	707/720	2	2	3	3
	727/100-200	680	147	0	0
	737-100	11	0	0	0
	737-200	312	90	5	0
	737-300	482	561	618	673
	737-400	94	123	135	147
	737-500	160	459	600	658
	MD-81/82/83/87/88	615	775	915	1010
	MD-90	11	13	14	16
	F-100	130	151	166	181
	F-28	70	81	90	97
Total Class 2 (81-150 Seats)		3273	3163	3324	3618
	757	660	1803	2294	2592
	A310	41	79	99	115
Total Class 3 (151-210 Seats)		701	1882	2393	2707
	L1011	101	49	53	53
	DC10	176	205	175	175
	747-SP	4	0	0	0
	767	224	483	611	854
	777	12	159	218	251
	A300	73	225	298	431
Total Class 4 (211-300 Seats)		591	1121	1355	1764
	MD11	55	70	93	117
	747-100	59	50	50	50
	747-200	62	60	53	52
	747-400	47	91	126	161
Total Class 5 (301-400 Seats)		223	271	322	380
	XX (future design)	0	39	80	133
Total Class 6 (401-500 Seats)		0	39	80	133
	747-SR	0	19	92	144
Total Class 7 (501-600 Seats)		0	19	92	144
TOTAL (Class 2-7)		**4787**	**6494**	**7566**	**8745**